

CATALOGUE OF RECENT AND FOSSIL
NEMESTRINIDÆ OF AMERICA
NORTH OF MEXICO

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The present compilation arranges all published references of North American Nemestrinidæ, known to the author, so as to present a reliable key to the literature and a clear historical view of the subject. All citations have been checked with the originals. The actual date of publication follows the author's name while any other date mentioned in connection with the work is inserted in parentheses after the abbreviated title and volume number. The type localities and present location of the types are noted with the original descriptions of either sex. Other references mention localities based on new material, as well as important biological data. I have used the opportunity to publish additional localities for some of the forms.

The abbreviations have been chosen so that even the beginner and non-specialist will be able to trace them in the literature. In my experience Catalogues are more useful to the uninitiated than to the strict specialist. The following abbreviations are used for the depositories of types: A.M.N.H. for American Museum of Natural History, New York; Brit. Mus. for British Museum (Natural History), London; Kansas Un. for Department of Zoölogy and Entomology, University of Kansas, Lawrence, Kansas; M.C.Z. for Museum of Comparative Zoölogy, Cambridge, Massachusetts; Melander Coll. for private collection of A. L. Melander, now at Riverside, California; Painter Coll. for private collection of R. H. Painter, now at Manhattan, Kansas; Peabody Mus. for Peabody Museum of Yale University, New Haven, Connecticut; U. Colo. Mus. for Museum of the University of Colorado, Boulder, Colorado; and U.S.N.M. for United States National Museum, Washington, D. C.

The Catalogue covers the Dominion of Canada and the United States, no species being known from Alaska. This area includes the major part of the Nearctic Region, which, as is well known, extends some distance into Mexico, its southern boundary being irregular and often disputed. Two of the species here listed are known also from farther south, extending to Guatemala in one case and to Panama in the other. Moreover, most probably some of the other forms will also be taken eventually south of the Mexican border. On the other hand, three additional species, *Neorhynchocephalus mexicanus* Bequaert, *Hirmoneura* (*Neohirmoneura*) *psilotes* Osten Sacken, and *Hirmoneura* (*Hyrmophlæba*) *brevirostris* Macquart, are known from Mexico and Central America. One or more of these might possibly yet be discovered in the southwestern United States. With this reservation, it is doubtful whether many additions will be made in the future to the Recent Catalogue. In any case, such additions will not alter appreciably the general character of the fauna.

Even if we include the Mexican and Central American forms, the Nearctic nemestrinid fauna is very scant, consisting of only nine species and one subspecies. These are now placed in three subfamilies and three genera, an unusually high proportion of supra-specific groups. All the species are precinctive; while one of the three genera only (*Neorhynchocephalus*) is strictly American, occurring as far south as Argentina. The other two genera (*Hirmoneura* and *Trichopsidea*) are nearly cosmopolitan; but the Nearctic species belong to peculiarly American subgenera (*Neohirmoneura*, *Hyrmophlæba*, and *Parasymmictus*).

Throughout the world the majority of Recent Nemestrinidæ occur in five widely separated areas: the Nearctic Region; the warm temperate areas of Chile and Argentina; the Mediterranean subregion and Central Asia; Africa south of the Zambesi; and Australasia. In point of number of species, the Nearctic Region is the poorest of these five areas. The Recent North American members of the family appear to be remnants of what may

have been a flourishing fauna at some earlier geological period. This is strongly suggested by the relatively rich fossil fauna. One set of Miocene strata in one locality has now yielded five species, belonging to at least three genera, one of the latter no longer found in the New World. The fact that only one fossil species is known outside North America makes this even more remarkable. Bequaert and Carpenter (1936) have commented upon the astonishing similarity between the Miocene and Recent Nemestrinidæ. The evolution of the family seems to have been at a standstill since mid-Tertiary times, which also points to the great antiquity of the group.

RECENT SPECIES

Family NEMESTRINIDÆ

Nemestrinidæ Macquart, 1834, Hist. Nat. Ins. Dipt., I, p. 370.

Fallenina Rondani, 1856, Dipt. Italicæ Prodr., I, p. 33 and 161.

Nemestrinidii Bigot, 1856, Ann. Soc. Ent. France (3) IV, pp. 63 and 85.

Nemestrinites Walker, 1857, Trans. Ent. Soc. London (N. S.) IV, pt. 5, p. 133.

Hirmoneuridæ H. Loew, 1860, Abh. Naturw. Ver. Halle, II, pt. 2, pp. ix and 317 (Dipteren-Fauna Südafrikas, I, pp. ix and 245).

Nemestrinidæ Williston, 1883, Canad. Entom., XV, p. 69.

Subfamily HIRMONEURINÆ

Hirmoneurina H. Loew, 1860, Abh. Naturw. Ver. Halle, II, pt. 2, p. ix (Dipteren-Fauna Südafrikas, I, p. ix).

Hirmononeurina H. Loew, 1860, Abh. Naturw. Ver. Halle, II, pt. 2, p. 318 (Dipteren-Fauna Südafrikas, I, p. 246).

Hirmoneurinæ Bequaert, 1930, Psyche, XXXVII, p. 295.

Hirmoneura Meigen

Hirmoneura Meigen, 1820, Syst. Besch. Europ. Zweifl.

- Ins., II, p. 132 (monotypic for *Hirmoneura obscura* Wiedemann, 1820).
- Hirmoneura* Blanchard, 1840, in Brullé, Hist. Nat. Anim. Articulés, III, p. 387 (emendation of *Hirmoneura*; same type).
- Hyrnoneura* Rondani, 1864, Arch. Zool. Modena, III, p. 50 (misspelling of *Hirmoneura*; same type).
- Hermoneura* Philippi, 1865, Verh. Zool. Bot. Ges. Wien, XV, p. 655, footnote (emendation of *Hirmoneura*; same [subg.] type).
- clausa* Osten Sacken. See *Trichopsidea*.

Subgenus *Neohirmoneura* Bequaert

Hirmoneura subg. *Neohirmoneura* Bequaert, 1920, Jl. New York Ent. Soc., XXVII (for 1919), p. 306 (type by original designation: *Hirmoneura flavipes* Williston, 1886).

1. *H. (Neohirmoneura) bradleyi* Bequaert.

Hirmoneura (Neohirmoneura) bradleyi Bequaert, 1920, Jl. New York Ent. Soc., XXVII (for 1919), p. 301, fig. (on p. 302) (holotype ♀ and allotype ♂: Anhalt, Comal Co., Texas.—Both A.M.N.H.; paratypes: Helotes, Bexar Co., Texas).

Hirmoneura bradleyi Hull, 1923, Ent. News, XXXIV, p. 277 (Texas: Bee Creek Canyon near Austin; Austin). Bequaert and Carpenter, 1936, Jl. of Paleontology, X, p. 396, fig. 1.

Distr.: Tex.

2. *H. (Neohirmoneura) flavipes* Williston.

Hirmoneura flavipes Williston, 1886, Trans. Amer. Ent. Soc., XIII, p. 292 (holotype ♀: "United States."—Kansas Un.). Johnson, 1895, Proc. Ac. N. S. Philadelphia, XLVII, p. 325 ("Florida"; erroneous locality). Aldrich, 1905, Smithson. Misc. Coll., XLVI, No. 1444, p. 218. Cockerell, 1908, Trans. Amer. Ent. Soc., XXXIV, pp. 251 and 252 (erroneously given as ♂). Lichtwardt, 1910, Deutsch. Ent. Zeitschr., p. 589. Schaeffer,

1912, Jl. New York Ent. Soc., XX, p. 296 (Arizona: Huachuca Mts.). Johnson, 1913, Bull. Amer. Mus. Nat. Hist., XXXII, p. 54 ("Florida"; erroneous locality). Hunter, 1914, Kansas Un. Sci. Bull., VIII, pt. 1, p. 19 (type in Snow Coll., Kansas Un.).

Hermoneura flavipes Kertész, 1909, Cat. Dipt., IV, p. 26.

Hirmoneura (*Neohirmoneura*) *flavipes* Bequaert, 1920, Jl. New York Ent. Soc., XXVII (for 1919), p. 306 (♀♂); 1934, *op. cit.*, XLII, p. 176 (allotype ♂: Huachuca Mts., Cochise Co., Arizona.—M.C.Z. Also Arizona: Pinery Canyon, Chiracahua Mts., 6,500 ft., Cochise Co.; Post Creek Canyon, Pinaleno Mts., Fort Grant, 6,000 ft., Graham Co.).

Distr.: Ariz.

Subgenus *Hymrophlæba* Rondani

Hymrophlæba Rondani, 1864, Arch. Zool. Modena, III, p. 51 (monotypic for *Hirmoneura brevirostris* Macquart, 1845).

Hirmophlæba Bigot, 1881, Ann. Soc. Ent. France, (6) I, p. 17 (misspelling of *Hymrophlæba*; same type).

Hymrophlæba Curran, 1934, Fam. Gen. North Am. Dipt., p. 202 (misspelling of *Hymrophlæba*; same type).

Hirmophlæba Curran, 1934, Fam. Gen. North Am. Dipt., p. 202 (misspelling of *Hymrophlæba*; same type).

3. *H.* (*Hymrophlæba*) *texana* Cockerell.

Hirmoneura texana Cockerell, 1908, Trans. Amer. Ent. Soc., XXXIV, p. 253 (holotype ♂: New Braunfels, Texas.—Melandier Coll.) [1908, Amer. Jl. Sci., (4) XXV, p. 311, fig. (on p. 310); as *Hirmoneura* B]; 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286. Lichtwardt, 1910, Deutsch. Ent. Zeitschr., p. 591.

Hymrophlæba texana Bequaert, 1920, Jl. New York Ent. Soc., XXVII, (for 1919), p. 306.

Hirmoneura (*Hymrophlæba*) *texana* Bequaert, 1934, Jl. New York Ent. Soc., XLII, p. 178 (allotype

♀: Helotes, Bexar Co., Texas.—M.C.Z. Also Texas: Nueces R., Uvalde Co.; Sabinal R., Uvalde Co. Arizona: Post Creek Canyon, Pinaleno Mts., Fort Grant, 6,000 ft., Graham Co.

Hirmophlæba texana Curran, 1934, Fam. Gen. North Am. Dipt., p. 202, figs. 3-4.

Distr.: Tex., Ariz. Also Panama (Tapia, collected by G. Fairchild).

3a. *H. (H.) texana* var. *arizonensis* Bequaert.

Hirmoneura (Hirmophlæba) texana var. *arizonensis* Bequaert, 1934, Jl. New York Ent. Soc., XLII, p. 180 (holotype ♂: San Diego Canyon, Baboquivari Mts., 25 miles SE of Sells, Pima Co., Arizona.—Painter Coll.; allotype ♀: Baboquivari Mts., Pima Co., Arizona.—Kansas Un.).

Additional Record.—Arizona: Tucson, many ♀♂, September 3 (F. M. Carpenter).

Distr.: Ariz.

Subfamily NEMESTRININÆ

Rhynchocephalina H. Loew, 1860, Abh. Naturw. Ver. Halle, II, pt. 2, p. x (Dipteren-Fauna Südafrikas, I, p. x).

Nemestrininæ Bequaert, 1930, Psyche, XXXVII, p. 286.

Neorhynchocephalus Lichtwardt

Neorhynchocephalus Lichtwardt, 1909 (July), Deutsch. Ent. Zeitschr., p. 512 (for 2 species; type by designation of Bequaert, 1930: *Rhynchocephalus volaticus* Williston, 1883).

Rhynchocephalus subg. *Nemestrinopsis* Cockerell, 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 285 (type by original designation: *Rhynchocephalus volaticus* Williston, 1883).

1. *N. sackenii* (Williston).

Rhynchocephalus sackenii Williston, 1860, Trans. Conn. Ac. Sci., IV, p. 243, fig. (holotype ♀: Olympia, State of Washington.—Kansas Un.). Hine, 1904, Canad. Entom., XXXVI, pp. 86 and

90 (British Columbia: Vernon). Schaeffer, 1912, Jl. New York Ent. Soc., XX, p. 296 (Arizona: Huachuca Mts.).

Rhynchocephalus sackeni Williston, 1883, Canad. Entom., XV, pp. 70 and 71 (allotype ♂: State of Washington.—Kansas Un.); 1894, Ent. News, V, p. 47 (oviposition. Colorado: Colorado Springs). Snow, 1903, Kansas Un. Sci. Bull., II, pt. 5, p. 214 (Kansas: Clark Co.; Morton Co.). Aldrich, 1905, Smithson. Misc. Coll., XLVI, No. 1444, p. 219. Cockerell, 1908, Trans. Amer. Ent. Soc., XXXIV, p. 249, Pl. XVI, figs. 1 and 3 (Colorado: Ft. Collins). Kertész, 1909, Cat. Dipt., IV, p. 30. Cockerell, 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286. Hunter, 1914, Kansas Un. Sci. Bull., VIII, pt. 1, p. 19 (type in Snow Coll., Kansas Un.). Gibson, 1916, 46th Ann. Rept. Ent. Soc. Ontario (for 1915), p. 211. Cole and Lovett, 1921, Proc. Calif. Ac. Sci., (4) XI, p. 239 (Oregon: Forest Grove; Mary's Peak; Corvallis; Lewisburg; Union Co.). Robertson, 1928, Flowers and Insects, p. 47 (Illinois: Carlinville, at fl. of *Achillea millefolium*). Curran, 1931, Canad. Entom., LXIII, pp. 69 and 72 (California).

Neorhynchocephalus sackeni Lichtwardt, 1909, Deutsch. Ent. Zeitschr., p. 512; 1910, *op. cit.*, p. 593 (♂♀). Bequaert, 1930, Psyche, XXXVII, p. 291 (♀♂. State of Washington: Yakima River; Rock Lake. Oregon: Mt. Angel. California: Goose Lake, Medoc Co. Idaho: Grangeville; Whitebird. Utah: Mill Creek; Salt Lake City. Colorado: Boulder. New Mexico: West Canyon Camp, Koehler); 1932, Zoolog. Anzeiger, C, p. 33. James, 1938, Jl. Kansas Ent. Soc., XI, p. 21 (Colorado: Boulder; Masonville; Spring Canyon, Fort Collins; Horsetooth Gulch, Fort Collins; Crystal Springs Country Club, Flagler; Fort Collins). Spencer, 1945, Proc. Ent. Soc. British Columbia, XLII, p. 18 (British Columbia: Kamloops. Bred from *Melanoplus m. mexicanus*; descr. of larva).

Neorhynchocephalus sackenii Bequaert, 1934, Jl. New York Ent. Soc., XLII, pp. 165 and 169 (♀♂; oviposition. State of Washington: Spanaway, Pierce Co.; Roy, Pierce Co. Oregon: Salem, Marion Co. Utah: Mt. Buncombe near Logan, Cache Co., 10,000 ft. Kansas: Manhattan, Riley Co.; Medora, Reno Co.; Kiowa Co.; Scott Co.; Cheyenne Co.; Norton Co.; McPherson Co. Oklahoma: Lawton, Comanche Co. Arkansas: Springdale, Washington Co. Michigan: Douglas Lake, Cheboygan Co.).

Rhynchocephalus subnitens Cockerell, 1908, Trans. Amer. Ent. Soc., XXXIV, p. 250 (holotype ♀: Clark Co., Kansas, 1,960 ft.—Melander Coll.); 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286. Schaeffer, 1912, Jl. New York Ent. Soc., XX, p. 296 (Arizona: Huachuca Mts.). Curran, 1931, Canad. Entom., LXIII, pp. 69 and 72.

Neorhynchocephalus subnitens Lichtwardt, 1910, Deutsch. Ent. Zeitschr., p. 593.

Rhynchocephalus clausus Brauer, 1880, Offenes Schreiben Antwort Osten Sacken's "Critical Review," p. 8 (Colorado). Not of Osten Sacken, 1877.

Additional Records.—Oregon: Bush's Pasture, Salem (G. F. Smith); [also Sparta, Baker Co., according to T. H. G. Aitken, *in litt.*]—California: Santa Cruz.

Distr.: Brit. Col., Wash., Ore., Calif., Ida., Ut., Ariz., Colo., N. M., Kans., Okla., Ark., Mich., Ill.

2. *N. volaticus* (Williston).

Rhynchocephalus volaticus Williston, 1883, Canad. Entom., XV, pp. 70 and 71, fig. 4 (described from 2 ♀ cotypes, from "Florida"; the type locality is Georgiana, Florida, according to Bequaert, 1934, Jl. New York Ent. Soc., XLII, p. 167, footnote.—Lecto-holotype at Kansas Un; cotype at U.S.N.M.); 1886, Trans. Amer. Ent. Soc., XIII, p. 293 (descr. corrected); 1888, Synopsis North Amer. Dipt., p. 33, fig. Johnson, 1895, Proc. Ac. Nat. Sci. Philadelphia, XLVII, p. 325 (Florida:

- St. Augustine). Aldrich, 1905, *Smithson. Misc. Coll.*, XLVI, No. 1444, p. 219. Williston, 1908, *Manual North Amer. Dipt.*, 3d Ed., p. 186, fig. 68. Cockerell, 1908, *Trans. Amer. Ent. Soc.*, XXXIV, p. 250. Kertész, 1909, *Cat. Dipt.*, IV, p. 30. Hunter, 1914, *Kansas Un. Sci. Bull.*, VIII, pt. 1, p. 19 (type in Snow Coll., Kansas Un.). Curran, 1931, *Canad. Entom.*, LXIII, pp. 69 and 72.
- Neorhynchocephalus volaticus* Lichtwardt, 1909, *Deutsch. Ent. Zeitschr.*, p. 512; 1910, *op. cit.*, p. 593, fig. 2 (on p. 592). Johnson, 1913, *Bull. Amer. Mus. Nat. Hist.*, XXXII, p. 54. Hull, 1923, *Ent. News*, XXXIV, p. 275 (Mississippi: A. and M. College near Starkville; West Point. Texas: Kingsville; Raymondville). Bequaert, 1930, *Psyche*, XXXVII, p. 290 (Texas: Cotula; Nueces R. Kansas: Bourbon Co., 800 ft.; Sumner Co., 1189 ft.; Lawrence; Douglas Co.); 1934, *Jl. New York Ent. Soc.*, XLII, pp. 165 and 166, figs. 1E-G (on p. 172) (Kansas: Atchison Co.; Morris Co.; Medicine Lodge, Barber Co.; Onaga, Pottawatomie Co.; Riley Co.; Cowley Co.; Doniphan Co.; Saline Co.; Manhattan, Riley Co.; Leavenworth Co.; Dickinson Co. Oklahoma: Arbuckle Mts., Murray Co. Florida: Sanford, Seminole Co.; Wildwood, Sumter Co. Missouri: Hollister, Taney Co. Arizona: San Diego Canyon on west side of Baboquivari Mts., 25 miles SE of Sells, Pima Co. At fl. of *Houstonia* in Kansas; descr. pupa). Curran, 1934, *Fam. Gen. North Am. Dipt.*, p. 202, figs. 5-6.
- Rhynchocephalus (Neorhynchocephalus) volaticus* Cockerell, 1910, *Bull. Amer. Mus. Nat. Hist.*, XXVIII, pp. 285 and 286.
- Rhynchocephalus maculatus* Curran, 1931, *Canad. Entom.*, LXIII, p. 69 (cotypes ♀♂: Lawrence, Kans.—Kansas Un.).
- Rhynchocephalus flavus* Curran, 1931, *Canad. Entom.*, LXIII, pp. 69 and 70 (holotype ♂: Harper Co., Kansas; allotype ♀: Sumner Co., Kan-

sas.—Both Kansas Un. Also paratypes Kansas: Bourbon Co.; Cherokee Co.; Waubaunsee Co.).

Additional Records.—Florida: Indian River (Whitfeld); Monticello (G. Fairchild).—Missouri: Willard, Greene Co. (A. E. Brower).

Distr.: Ariz., Kans., Okla., Mo., Tex., Miss., Fla. Also Mexico (Baja California, Sinaloa, Guerrero, Colima, Morelos, Veracruz, Oaxaca, Yucatan) and Guatemala.

Rhynchocephalus Fischer, 1806

clausus Brauer (not Osten Sacken). See *Neorhynchocephalus sackenii*.

flavus Curran. See *Neorhynchocephalus volaticus*.

maculatus Curran. See *Neorhynchocephalus volaticus*.

sackenii Osten Sacken. See *Neorhynchocephalus*.

subnitens Cockerell. See *Neorhynchocephalus sackenii*.

volaticus Williston. See *Neorhynchocephalus*.

Subfamily TRICHOPSIDEINÆ

Trichopsideinæ Bequaert, 1932, Zoolog. Anzeiger, C, p. 33.

Trichopsidea Westwood

Trichopsidea Westwood, 1839, Trans. Ent. Soc. London, II, p. 151 (monotypic for *Trichopsidea oestracea* Westwood, 1839).

Subgenus *Parasymmictus* Bigot

Parasymmictus Bigot, 1879, Ann. Soc. Ent. France, (5) IX, Bull. Séances, p. lxxvii (monotypic for *Hirmoneura clausa* Osten Sacken, 1877).

Parasymmictus Curran, 1934, Fam. Gen. North Am. Dipt., p. 202 (misspelling of *Parasymmictus*; same type).

1. *T. (Parasymmictus) clausa* (Osten Sacken).

Hirmoneura clausa Osten Sacken, 1877, Bull. U. S. Geol. Survey, III, pt. 2, p. 225 (holotype ♂, erroneously given as ♀: Dallas, Texas.—M.C.Z.); 1878, Smithson. Misc. Coll., No. 270, pp. 85 and

237. Williston, 1883, *Canad. Entom.*, XV, p. 70. Osten Sacken, 1898, *Berlin. Ent. Zeitschr.*, XLII (for 1897), p. 148. Aldrich, *Smithson. Misc. Coll.*, XLVI, No. 1444, p. 218.

Parasymmictus clausus Bigot, 1879, *Ann. Soc. Ent. France* (5) IX, *Bull. Séances*, p. lxxvii; 1881, *op. cit.* (6) I, p. 15. Kertész, 1909, *Cat. Dipt.*, IV, p. 31. Lichtwardt, 1910, *Deutsch. Ent. Zeitschr.*, pp. 589 and 591. Johnson, 1913, *Bull. Amer. Mus. Nat. Hist.*, XXXII, p. 54 (Florida: Beresford). Bequaert, 1920, *Jl. New York Ent. Soc.*, XXVII (for 1919), p. 306. J. Comstock, 1924, *Introduction to Entomology*, p. 836, fig. 1077. Spencer, 1945, *Proc. Ent. Soc. Brit. Columbia*, XLII, p. 18 (British Columbia: Riske Creek, Chilcotin; Lac du Bois, Kamloops. Oviposition; descr. larva; bred from *Camnula pellucida* and other grasshoppers).

Hirmonевра (Parasymmictus) clausa Cockerell, 1908, *Trans. Amer. Ent. Soc.*, XXXIV, p. 251; 1908, *Amer. Jl. Sci.* (4) XXV, p. 311, fig. (on p. 310); 1910, *Bull. Amer. Mus. Nat. Hist.*, XXVIII, p. 286.

Trichopsidea (Parasymmictus) clausa Bequaert, 1934, *Jl. New York Ent. Soc.*, XLII, pp. 181 and 182 (Kansas: Medora, Reno Co.).

Parasymmyctus clausus Curran, 1934, *Fam. Gen. North Am. Dipt.*, p. 202, figs. 1-2.

Rhynchocephalus sackeni J. and A. Comstock, 1895, *Manual Study Insects*, 1st. Ed., p. 460, fig. 555 (repeated in later editions of this work). Spencer, 1931, *Proc. Ent. Soc. Brit. Columbia*, XXVIII, p. 21, figs. (on p. 24) (British Columbia: Riske Creek, Chilcotin. Oviposition); 1932, *op. cit.*, XXIX, p. 25 (oviposition). Graham, 1932, *Canad. Entom.*, LXIV, p. 167 (British Columbia. Variation). Not of Williston, 1880.

Rhynchocephalus sp. J. Comstock, 1918, *The Wings of Insects*, p. 347, fig. 358.

Distr.: Brit. Col., Kans., Tex., Fla.

FOSSIL SPECIES

Subfamily HIRMONEURINÆ

Hirmoneura Meigen

- occultator* Cockerell. See *Neorhynchocephalus*.
melanderi Cockerell. See *Neorhynchocephalus* (?).
vulcanicus Cockerell. See *Neorhynchocephalus*.

Subgenus *Hirmoneurites* Cockerell

Hirmoneurites Cockerell, 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, pp. 283 and 285 (monotypic for *Hirmoneurites willistoni* Cockerell, 1910).

1. *H. (Hirmoneurites) willistoni* (Cockerell).

Hirmoneurites willistoni Cockerell, 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, pp. 283 and 286, fig. 3 (on p. 283) (no sex given; holotype: Florissant, Colorado.—A.M.N.H.).

Hirmoneura (Hirmoneurites) willistoni Bequaert, 1932, Zoolog. Anzeiger, C, p. 15. Bequaert and Carpenter, 1936, Jl. of Paleontology, X, p. 399, figs. 2 (on p. 400) and 7 (2) (on p. 405) (holotype ♀).

Distr.: Miocene of Colo.

Subfamily NEMESTRININÆ

Neorhynchocephalus Lichtwardt1. *N. occultator* (Cockerell).

Hirmoneura occultator Cockerell, 1908, Trans. Amer. Ent. Soc., XXXIV, p. 254 (no sex given; holotype: Florissant, Colorado.—Obverse at U. Colo. Mus.; reverse at Brit. Mus.). Bather, 1909, Proc. Geologists' Assoc., XXI, pt. 3, p. 162 (type at Brit. Mus.). Cockerell, 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286.

Neorhynchocephalus occultator Bequaert and Carpenter, 1936, Jl. of Paleontology, X, pp. 399 and 402, figs. 4 (on p. 400) and 7 (1) (on p. 405) (obverse of type ♀).

Distr.: Miocene of Colo.

2. *N. vulcanicus* (Cockerell).

Hirnoneura vulcanica Cockerell, 1908, Amer. Jl. Sci. (4) XXV, p. 311 (no sex given; holotype: Florissant, Colorado.—Obverse at Peabody Mus.; reverse at U. Colo. Mus.); 1908, Trans. Amer. Ent. Soc., XXXIV, pp. 251 and 253; 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286.

Neorhynchocephalus vulcanicus Bequaert and Carpenter, 1936, Jl. of Paleontology, X, pp. 399 and 401, figs. 3 (on p. 400) and 7 (4) (on p. 405) (obverse and reverse of type ♀).

Distr.: Miocene of Colo.

Generic Position Doubtful

3. *N. (?) melanderi* (Cockerell).

Hirnoneura melanderi Cockerell, 1908, Amer. Jl. Sci. (4) XXV, p. 311 (no sex given; holotype: Florissant, Colorado.—Obverse at Peabody Mus.; reverse at U. Colo. Mus.); 1908, Trans. Amer. Ent. Soc., XXXIV, pp. 251 and 253; Pl. XVI, fig. 4 (add. specimen, prob. ♀, Florissant); 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286.

Neorhynchocephalus (?) melanderi Bequaert and Carpenter, 1936, Jl. of Paleontology, X, pp. 399 and 403, figs. 5 (on p. 400) and 7 (3) (on p. 405) (obverse and reverse of type, of doubtful sex. Also 2 add. specimens, one ♂, Florissant, at M.C.Z.).

Distr.: Miocene of Colo.

Prosæca Schiner

Prosæca Schiner, 1867, Verh. Zool. Bot. Ges. Wien, XVII, pp. 306 and 311 (type by original designation: *Nemestrina westermanni* Wiedemann, 1821).

Subgenus *Palembolus* Scudder

Palembolus Scudder, 1878, Bull. U. S. Geol. Geogr. Surv. Terr., IV, p. 526 (monotypic for *Palembolus florigerus* Scudder, 1878).

Palombolus Handlirsch, 1907, Die Fossilen Insekten, pt. 7, p. 1009 (misspelling of *Palembolus*).

1. *P. (Palembolus) florigera* (Scudder).

Palembolus florigerus Scudder, 1878, Bull. U. S. Geol. Geogr. Surv. Terr., IV, pp. 519 and 528 (no sex given; holotype: Florissant, Colorado.—Obverse and reverse at M.C.Z.); 1885, in Zittel, Handbuch d. Palaeontologie, Abt. I, II, p. 808, fig. 1076; 1887, in Zittel, Traité de Paléontologie, Barrois Ed., II, p. 809, fig. 1093; 1890, Rept. U. S. Geol. Surv. Terr., XIII, p. 29. Zittel, 1895, Grundzüge d. Palaeontologie, p. 506, fig. 1380. Scudder, 1900, in Zittel, Text-Book of Palaeontology, Eastman Ed., I, pt. 2, p. 688, fig. 1567. Zittel, 1903, Grundzüge d. Palaeontologie, 2d Ed., I, p. 542, fig. 1400. Cockerell, 1908, Trans. Amer. Ent. Soc., XXXIV, p. 248; 1910, Bull. Amer. Mus. Nat. Hist., XXVIII, p. 286. Scudder, 1913, in Zittel, Text-Book of Paleontology, 2d Eastman Ed., I, p. 816, fig. 1586.

Palombolus florigerus Handlirsch, 1907, Die Fossilen Insekten, pt. 7, p. 1009. Broili, 1915, in Zittel, Grundzüge d. Palaeontologie, I, p. 666, fig. 1454. Handlirsch, 1921, in Schröder, Handbuch d. Entomologie, III, p. 264, fig. 227.

Prosæca (Palembolus) florigera Bequaert and Carpenter, 1936, Jl. of Paleontology, X, pp. 399 and 406, figs. 6 (on p. 400) and 7 (5) (on p. 405) (obverse and reverse of type ♂).

Distr.: Miocene of Colo.